



THE COMMUNICATOR SURREY AMATEUR RADIO CLUB



Volume II

June 2010

Issue XLVI

VE7SAR

VE7RSC

PRESIDENT— John Brodie VA7XB

VICE PRESIDENT - Don Hamilton VA7GL

SECRETARY—Gordon Kirk VE7GRK

TREASURER - Scott Hawrelak VE7HA

WEB SITE www.ve7sar.net

WEB MASTER - Hiu Yee VE7XYG

COMMUNICATOR EDITOR—Fred Orsetti

VE7IO

BOARD OF DIRECTORS:

Bill Gipps—VE7XS

John Schouten - VE7TI

Kelvin Hall—VA7KPH

Fred Orsetti - VE7IO

Gary Skett—VE7AS

Chris Zetner—VA7CMZ



Surrey Amateur Radio Club

**ALWAYS MONITOR 147.36+ (110.9)
OR 443.775+ (110.9 in and out) IRLP 1463**

CLUB NET @ 8:00 P.M. Tuesday 147.36+ (110.9)

CLUB MAILING ADDRESS : 12160 Boundary Dr. S. Surrey, V3X 2B7

**The next meeting of the Surrey Amateur Radio Club will be
held at 7:00pm on Wednesday September 8th 2010 at the
PREOC Located at Green Timbers
Talk in on 147.36+ (110.9) 443.775+ (110.9)**

Meeting of Surrey Amateur Radio Club

Surrey Fire Hall #9,

Jun 09/10.

The Meeting was called to order at 19:00 by John Brodie VA7XB. A quorum was achieved with 17 of the 60 members in attendance.

1. 2010 AGM Agenda was presented and approved. Bill Gipps recommended approval, seconded by Clint Frearson.

Motion carried.

2. Minutes of May Meeting were approved. Motion by Kjeld Frederiksen, seconded by Kelvin Hall. Motion carried.

3. Announcements
A questionnaire was handed out asking for the club membership's feedback on likes and dislikes of club activities, suggestions for future events etc.

The Southwest PREOC is once again available where future meetings will be held. The next meeting will be September 8th, the 2nd Wednesday of September.

Field Day is coming June 24 – 26th.

We will continue to meet on Friday mornings at the ABC restaurant (74/King George Hwy) at 9 am for an informal get together. All are welcome.

The net will continue on an informal basis over the summer.

D-Star workshop in early July. Gord VE7FKY will help with the basics for those who have a D-Star radio. Bring your radio.

4. Reports.

We will again apply for a lottery grant this year. Bill Gipps, John Schouten, and Gord Kirk will assist John Brodie to prepare this by the end of Aug.

A seminar on June 19th for those with Yeasu 897 and 857 radios will be held at Bill Gipps "Radio Project". For details contact Gord Kirk.

Fall Ham class is planned for Thursday nights starting the last week of September this year.

Delta's Commfest has asked if the Surrey Club will help organize a FoxHunt on Oct 2 to coincide with the Commfest. Anton has been asked to help lead this.

Field Day is June 26th and 27th. Set up is Friday the 25th. We will be at Campbell Valley Park teamed up with LARA. We will use VE7LSY and for the GOTA station VE7LGY.

The Flea Market Aug 22nd also at Campbell Valley Park. The club needs to continue with ticket sales. The SEPARS Grab n Go kits will be on display, SARC will have a club table available. LARA will possibly set up for a possible ISS contact.

RAC Report. Bill Gipps spoke about what RAC has done for the hobby. One example was how RAC helped with the distracted driv-

ers legislation exemption for amateur radio operators. RAC also provides liability insurance for member clubs. RAC also has helped many Amateur operators with antenna restriction issues. RAC is looking for members.

BC Amateur Radio Coordination Council report also by Bill Gipps. The Tophat exercise last year revealed potential issues with frequency use during emergencies. Bill has been helping with a group trying to put together a list of where clubs/municipalities plan to operate during emergencies and exercises. A presentation was made to the BCARCC of where potential additional frequencies might be found.

SEPARS Report, by Fred Orsetti. Everything is moving along well. Kits have had good use. The antennas are being put up at Fire Hall #1.

4. Bylaw Amendments.

Motion 1: That the SARC annual financial statement for the period of July 1, 2009 to June 30, 2010 be reviewed and certified correct by a qualified professional, then circulated to the membership by email in July 2010 and approved by return email. Moved by Clint Frearson, seconded by Gary Skett. Motion carried.

Motion 2: That the fiscal year be changed from July 1-June 30 to June 1 to May 31. Moved by Kelvin Hall, seconded by Egon Frank. Motion carried.

Motion 3: That the new Executive assumes its duties at the conclusion of the AGM, rather than at the beginning of the fiscal year. Moved by Gary Skett, seconded by Clint Frearson. Motion carried.

Motion 4: A regular business meeting will be held a minimum of 8 times a year at a time, place and day acceptable to the membership, with adequate notice given. Moved by Gary

Skett, seconded by Kjeld Frederiksen. Motion carried.

6. Interim Financial Report presentation by Scott Hawrelak.

ING savings account \$2686.65

General account \$422.00

7. Election of Officers and Directors. By acclamation the following were elected.

President John Brodie

Vice President Don Hamilton

Secretary Gordon Kirk

Treasure Scott Hawrelak

Directors: Fred Orsetti, Bill Gipps, John Schouten, Kelvin Hall, Gary Skett and Chris Zetner.

8. Logging Software Presentation by Fred Orsetti VE7IO

The software being used this field day will be

N3FJP, Fred gave a demonstration on how it works.

Motion to adjourn Bill Little, seconded by Chris Zetner. Motioned carried.

Meeting ended at 21:20

Presidents Message



I would like to thank the SARC membership for supporting its Executive and Directors during the past season. Once Field

Day is over and after a two month respite, we will look ahead to the Fall months when we can resume those club activities that make the hobby fun and fulfilling (or should I say, some of us will enjoy a

two month respite as a few of us will be busy planning the summer's flea market). The membership is growing again to the point where the numbers can support more ambitious projects. Our first task in September will be to complete a review of club direction and interests, so I urge all members to give some thought to what they would like the club to become, and what activities would make it more enjoyable. At the June AGM, all four members of the Executive were re-elected by acclamation, as were 3 of the 4 Directors. In addition, we have 3 new Directors, who I would like to welcome: Gary VE7AS, Chris VA7CMZ and Kelvin VA7KPH. I look forward to working with the enlarged leadership group as we move forward.

I hope to see you all at Field Day – as radio operator, assisting with setup or takedown, or simply as visitor. Shortly after Field Day, we will be calling for volunteers to assist with the flea market – we will need people to collect entry fees, to assist vendors, to supervise parking and more. Please let me know by email (va7xb@rac.ca) if you will be available to help with flea market setup on August 21st and/or the event itself on August 22nd.

Important note: We must begin calling in raffle ticket stubs and cash received starting on Field Day. Bill Little VA7ZBL will be making the rounds asking if you have completely sold books and cash and can turn them in. All ticket stubs, unsold tickets and cash must be in our hands by August 22nd at the latest. If you need more books to sell (and we hope you do) Bill will have extra tickets for you. In order to maximize the profit from the raffle and flea market we need a big effort between now and August 22nd. Please do your part for the club.

Lastly, don't forget the "D-Star for Beginners" workshop on July 15th hosted by Gord Dick VE7FKY. Please see the website for details.

By Fred VE7IO

As this is the last Communicator for the year AND as we are about to demonstrate our communications preparedness at the annual Field Day event I would like to add a few final comments.

SARC is stronger now than it has been for a number of years and the interest in amateur radio is also growing. This all bodes well for SARC and for amateur radio in Surrey.

Congratulations to the past SARC executive who have volunteered many hours of their time, and in some cases covered their own expenses, for a job well done. I am proud to have been a part of the SARC experience and look forward to participating with everyone in the future.

Amateur radio in Surrey is now known as a strong contributor to the advancement of our hobby as we continue to be on the leading edge on amateur radio communications. During the first half of 2010 SARC and SEPARS members participated in two contest events with the Coquitlam club sharing ideas, equipment and information. For me this was a learning experience and one I will remember for some time to come. Seasoned testers readily shared their honed skills with beginners and our youngest SARC members making for a memorable experience.

We are about to wade into Field Day as a joint project with the Langley ARC. I know this is a debateable point but to me Field Day is a contest. Whether you are a beginner or a seasoned tester this is the place to have a lot of fun and share some great experiences and camaraderie. The committees of both SARC and LARA have met for many hours in preparation for this year's Field Day ensuring the operators a good shot at many contacts.

I know Coquitlam will be up to the challenge of scoring well at Field Day and with our cur-

rent line up of equipment, including the new super tower, we can certainly give them a run for their money.

I have been to many Field Days dating back to 1975 and for me the excitement of Field Day has not waned. I very much appreciate SARC members who have kind of put me out to pasture when it comes to setting up all the equipment but have given me an opportunity to be an active operator. I sincerely hope I am able to contribute to the success of this year's Field Day by making contacts and improving the overall score,

I am in the process of changing my main HF beam to a new SteppIR 3 element with a 40 30 add on. The decision to replace my 204 BA was mainly based on my plan to be more active in contesting and DXing starting in September. A few years ago at the first Contest University I attended in Dayton I realized that, while I enjoyed contesting, my shack was not comfortable enough for long hours in "The Chair" so I began to make changes. The shack is now very comfortable and it is now time to make VE7IO "LOUDER" thus the decision to improve my contesting antenna. The antenna project is underway with the completion scheduled for mid August. I am completely redoing the feed lines, grounding and replacing the rotator. Next year a new radio!

Finally, if you did not get bored and quit reading, I would like to put in a plug for the upcoming BCDXC annual convention to be held on July 30, 31 and August 1st. If you are at all interested in DX, contesting or just plain rag chewing and would like to meet some of the top DXers and testers this is your opportunity to see the best of ham radio. You can find out all the information by going to the BCDXC website <http://www.bcdxc.org/>.

My first Communicator was November 2000, 10 years ago and this is my 100th edition .

Very 73



With Gary Skett, VE7AS

Aerial Adventures 2010

Spring is finally here and some of the bands are showing some promising activity. I've added the Canary Islands and the Ukraine to my PSK31 contact list...not bad for a trapped dipole and 35 watts.

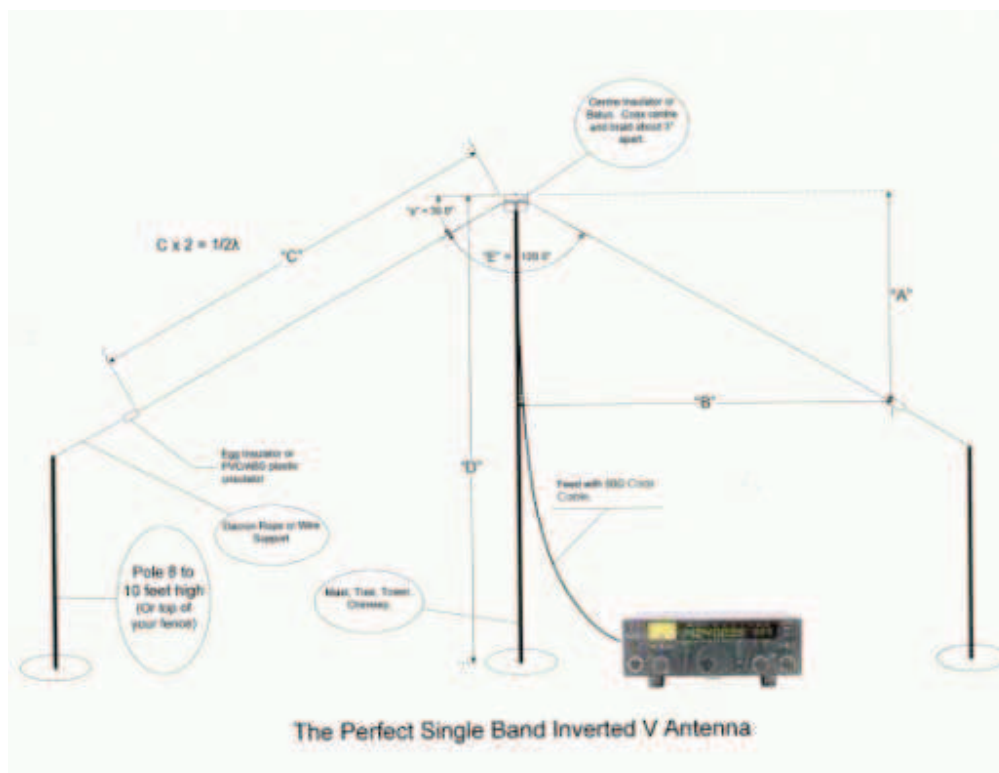
Over the past few months, I have had a bunch of new Hams come over and build some basic antennas to be able to get on the air. And so this month we are going to talk about getting back to basics. Nothing too fancy, but something to get you on the HF bands and some simple antennas for 50MHz. and up.

First of all, let's look at your garden-variety dipole....easy to make, inexpensive and effective....We'll make a mono-band and a multi-band version. Something that will work as a straight dipole or inverted Vee.

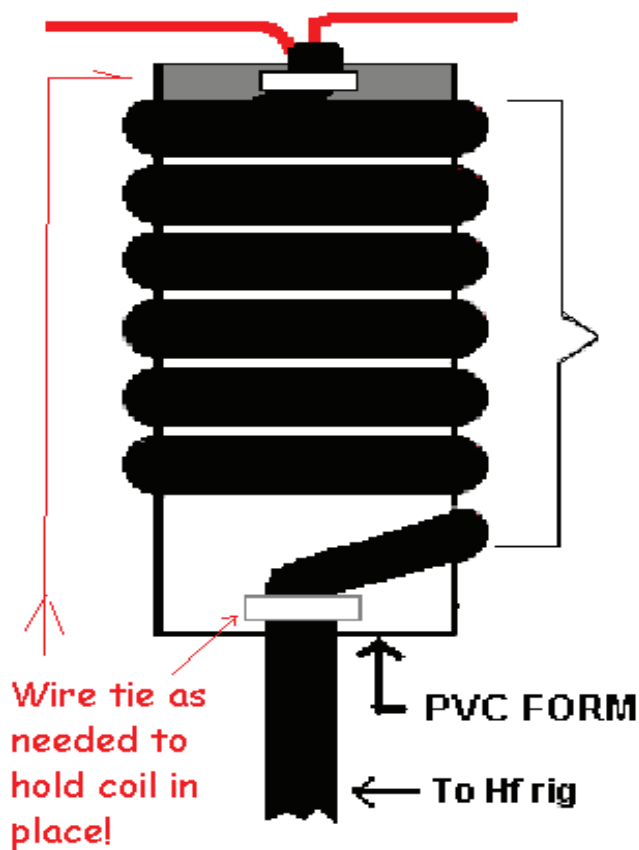
First...the formulas.....commit to memory $468/f$ (in MHz.) or $142.95/f$ (in MHz.). These give you dipole

lengths in decimal feet or metres. Then add a foot to each end just because it's easier to cut down the wire to length than add it.... The length chart [at the end of this article] is provided so you won't have to find your slide rule....All the dimensions for this antenna are calculated for you there. This mono-band dipole will work as a straight dipole or as an inverted Vee as shown.

The dipole wire can be the 14AWG bare copper available from Burnaby Radio or just about any



wire will do. We used 12AWG stranded copper with a white jacket... why? I had a spool rolling around... ☺



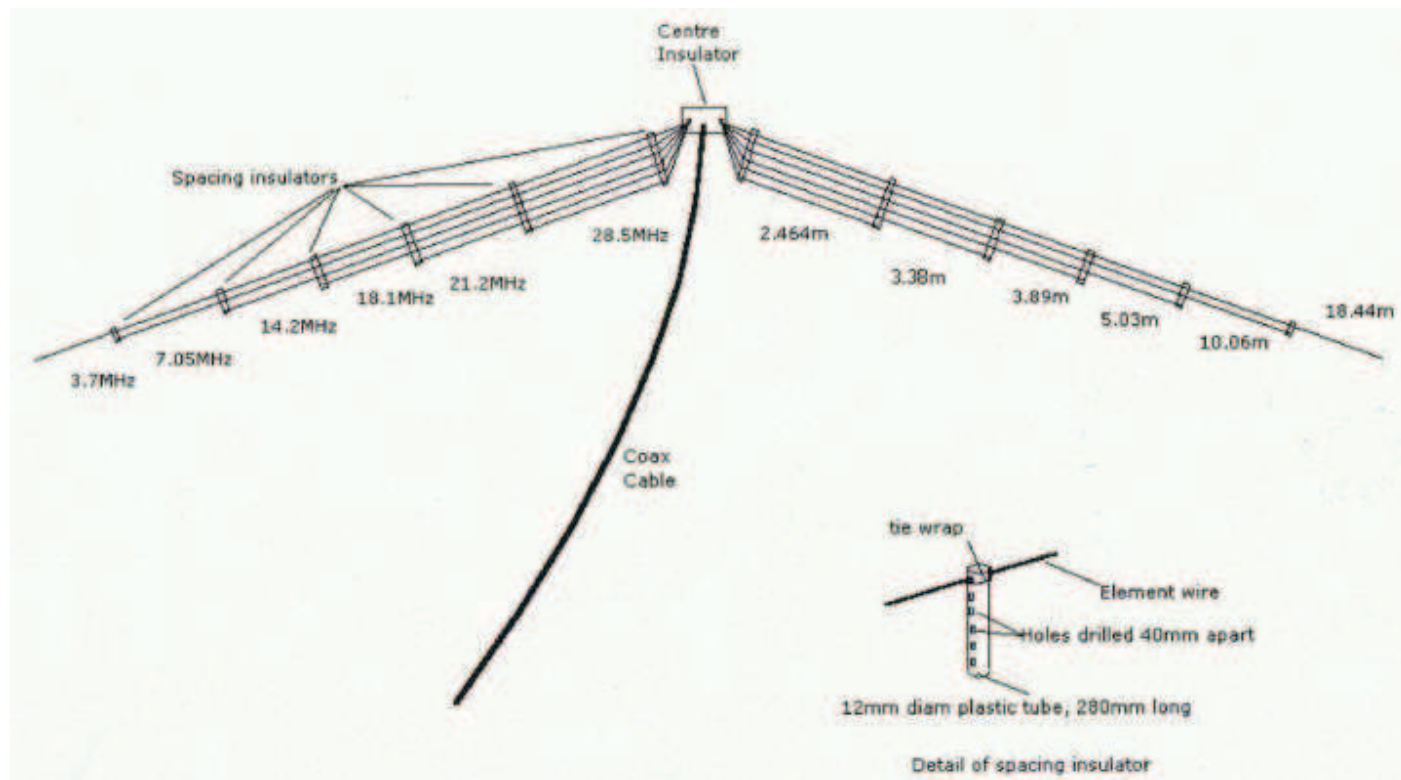
This is the basic construction drawing for the 1:1 Choke Balun for 160 thru 10 meters using one continuous length to the rig starting at the antenna attachment points. Depending on your use, coax connectors can be added or other connectors can be made for different types of antennas. Balun should be located AT the feed point of the antenna or very close. Drawing is not to scale and is only showing one method of winding the coax on a PVC form. The important part of the drawing is the 18 to 21 feet of coax close wound on the form. The number of coils is not important....just the length! Don't wind your coax tight enough to crush the internal insulation.

N4UJW

For the centre piece, we decided to make an “ugly balun” out of 25 feet of FLL240 [LMR240 equivalent] over a 4” ABS pipe coil form. Below a photo of the first ugly balun we made, the left simply had a layer of white electrical tape wrapped around the coil...



We ended up cutting off about 10" to a foot off the end of our 20m dipole...and when we were done, the resonant frequency was 14.100 MHz. with a SWR of 1.12:1 at centre and under 1.38:1 at the top end of 20. The impedance through the UB was an amazing 49.85 ohms!



If you wanted to experiment with a multi-dipole configuration, then you can add elements with PVC or ABS plastic spacers as shown in the diagram above. Start with the longest element and then add elements. You will have to adjust each dipole leg as you add elements...so no permanent cutting and length adjusting until the whole antenna is tuned. This will be a good day project. Minimum installation height -- 30 feet.

Another method, proven at MIT to be more effective is at the apex or Ugly Balun, space each leg of the dipole 3 ½ inches apart and spread or fan them out at the other end 3 ½ feet apart. This apparently maximizes antenna radiation and reception without affecting the individual elements. But you have to have that up in the air at least ¼ wave length at 3.7 MHz. For a good effect, get a giant hairy Halloween spider and have it hang from the balun!

The next page is the length chart for the Inverted Vee antenna on page one. Lengths and angles are calculated based on the centre of each Ham band. Expect changes at your QTH due to ground efficiency, proximity to trees and other structures and your building skills....

Inverted "V" Antenna Dimensions

"E" is 120° = 50Ω Impedance (Z) for a Direct Coax Feed

Band	160m	80m	75m	60m	40m	30m	20m	17m	15m	12m	10m	10m FM	6m
Mid Band Frequency in MHz	1.90	3.625	3.85	5.375	7.15	10.125	14.175	18.118	21.225	24.94	28.65	29.65	52.00
1/2λ	238.9	125.2	117.9	84.5	63.5	44.8	32.0	25.1	21.4	18.2	15.8	15.3	8.7
"A"	59.7	31.3	29.5	21.1	15.9	11.2	8.0	6.3	5.3	4.6	4.0	3.8	2.2
"B"	103.5	54.2	51.1	36.6	27.5	19.4	13.9	10.8	9.3	7.9	6.9	6.6	3.8
"C" = 1/4λ	119.5	62.6	59.0	42.2	31.7	22.4	16.0	12.5	10.7	9.1	7.9	7.7	4.4
"D" (Apex)	69.7	41.3	39.5	31.1	25.9	21.2	18.0	16.3	15.3	14.6	14.0	13.8	12.2
"E" = 120°	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th	Feet & 10 th

Notes:

The Gray shaded boxes (Frequency in MHz.) can be changed by the user to any specific frequency. I chose the median of each band.

"D" The Apex or required height of the centre insulator or balun is the total of "A" height plus 10 feet.

Inverted V configurations are SHORTER than horizontal dipoles. The table below gives you what to subtract from "C" based on angle "a" That being said, don't forget to include enough wire to wind around the insulators and the centre connector or balun!

Angle "a"	Shorten "C"
45°	5.0%
37°	4.0%
30°	3.0%
22°	2.0%

Please note the figures in the table above have

already been shortened by 3% for 30° of "a" and

using an "E" of 120°

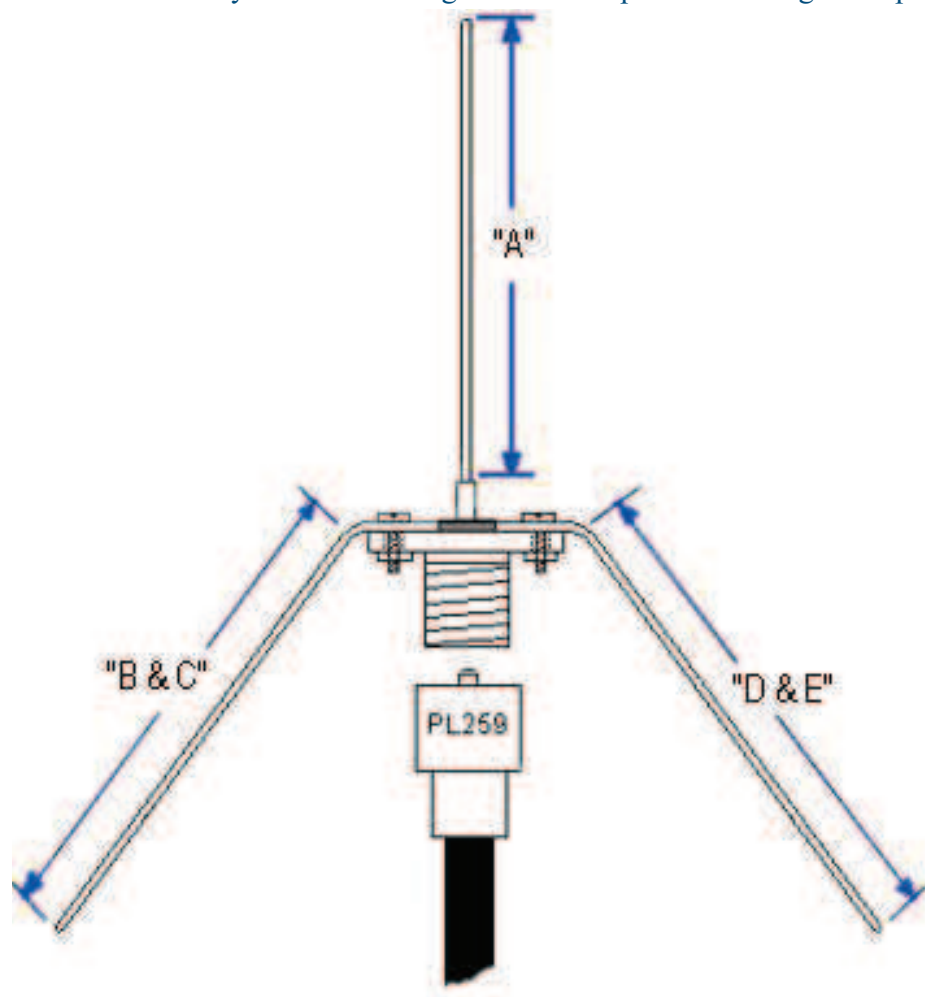
"E" can be as little at 60° and up to 120°, what you want to find is the 50Ω impedance point.

120° usually is a good place to start, if you can do it.

Decimal Conversion of the foot measurements in the chart above. Results are in inches. So 59.7 feet equals 59 feet 8 3/8 inches.

0.1	1 1/4	0.4	4 3/4	0.7	8 3/8
0.2	2 3/8	0.5	6	0.8	9 5/8
0.3	3 5/8	0.6	7 1/4	0.9	10 3/4

The next antenna you can throw together is a simple $1/4\lambda$ VHF ground plane. This is as simple as it gets folks!



One SO-239 Four-hole chassis



connector...and any solid wire or rod. I found some copper clad steel welding rod at Princess Auto

for \$7.99 a tube of a dozen or so 36" rods that work very well. Cut "A" for 19 1/2" and the others at 20 1/2" and you won't have trim it too much... Bend the ground plane radials at almost 45° [between 40° to 45°] for best impedance. This antenna maintains a less than 1.3:1 SWR across the entire 2 metre Ham band. Unity gain, but for repeater operation, it will get you on the air in less than an hour.

With the following charts made in MS-Excel, you can make one of these antennas for any band above 50 MHz. Have fun!

1/4 λ Ground Plane Calculations

Using $2808/f$ for the Radiating Element

Using $2948/f$ for the ground radial element

Results are in Inches

6 Metres			2 Metres			70 cm		
f (MHz.)	Radiator	Radial	f (MHz.)	Radiator	Radial	f (MHz.)	Radiator	Radial
50.000	56 3/16	58 15/16	144.000	19 8/16	20 8/16	430.000	6 8/16	6 14/16
50.125	56	58 13/16	144.125	19 8/16	20 7/16	430.500	6 8/16	6 14/16
50.250	55 14/16	58 11/16	144.250	19 7/16	20 7/16	431.000	6 8/16	6 13/16
50.375	55 12/16	58 8/16	144.375	19 7/16	20 7/16	431.500	6 8/16	6 13/16
50.500	55 10/16	58 6/16	144.500	19 7/16	20 6/16	432.000	6 8/16	6 13/16
50.625	55 7/16	58 4/16	144.625	19 7/16	20 6/16	432.500	6 8/16	6 13/16
50.750	55 5/16	58 1/16	144.750	19 6/16	20 6/16	433.000	6 8/16	6 13/16
50.875	55 3/16	57 15/16	144.875	19 6/16	20 6/16	433.500	6 8/16	6 13/16
51.000	55 1/16	57 13/16	145.000	19 6/16	20 5/16	434.000	6 8/16	6 13/16
51.125	54 15/16	57 11/16	145.125	19 6/16	20 5/16	434.500	6 7/16	6 13/16

51.250	54 13/16	57 8/16	145.250	19 5/16	20 5/16	435.000	6 7/16	6 12/16
51.375	54 11/16	57 6/16	145.375	19 5/16	20 4/16	435.500	6 7/16	6 12/16
51.500	54 8/16	57 4/16	145.500	19 5/16	20 4/16	436.000	6 7/16	6 12/16
51.625	54 6/16	57 2/16	145.625	19 5/16	20 4/16	436.500	6 7/16	6 12/16
51.750	54 4/16	56 15/16	145.750	19 4/16	20 4/16	437.000	6 7/16	6 12/16
51.875	54 2/16	56 13/16	145.875	19 4/16	20 3/16	437.500	6 7/16	6 12/16
52.000	54	56 11/16	146.000	19 4/16	20 3/16	438.000	6 7/16	6 12/16
52.125	53 14/16	56 9/16	146.125	19 3/16	20 3/16	438.500	6 6/16	6 12/16
52.250	53 12/16	56 7/16	146.250	19 3/16	20 3/16	439.000	6 6/16	6 11/16
52.375	53 10/16	56 5/16	146.375	19 3/16	20 2/16	439.500	6 6/16	6 11/16
52.500	53 8/16	56 2/16	146.500	19 3/16	20 2/16	440.000	6 6/16	6 11/16
52.625	53 6/16	56	146.625	19 2/16	20 2/16	440.500	6 6/16	6 11/16
52.750	53 4/16	55 14/16	146.750	19 2/16	20 1/16	441.000	6 6/16	6 11/16
52.875	53 2/16	55 12/16	146.875	19 2/16	20 1/16	441.500	6 6/16	6 11/16
53.000	53	55 10/16	147.000	19 2/16	20 1/16	442.000	6 6/16	6 11/16
53.125	52 14/16	55 8/16	147.125	19 1/16	20 1/16	442.500	6 6/16	6 11/16
53.250	52 12/16	55 6/16	147.250	19 1/16	20	443.000	6 5/16	6 10/16
53.375	52 10/16	55 4/16	147.375	19 1/16	20	443.500	6 5/16	6 10/16
53.500	52 8/16	55 2/16	147.500	19 1/16	20	444.000	6 5/16	6 10/16
53.625	52 6/16	55	147.625	19	20	444.500	6 5/16	6 10/16
53.750	52 4/16	54 14/16	147.750	19	19 15/16	445.000	6 5/16	6 10/16
53.875	52 2/16	54 12/16	147.875	19	19 15/16	445.500	6 5/16	6 10/16
54.000	52	54 9/16	148.000	19	19 15/16	446.000	6 5/16	6 10/16

1/4 λ Ground Plane Calculations

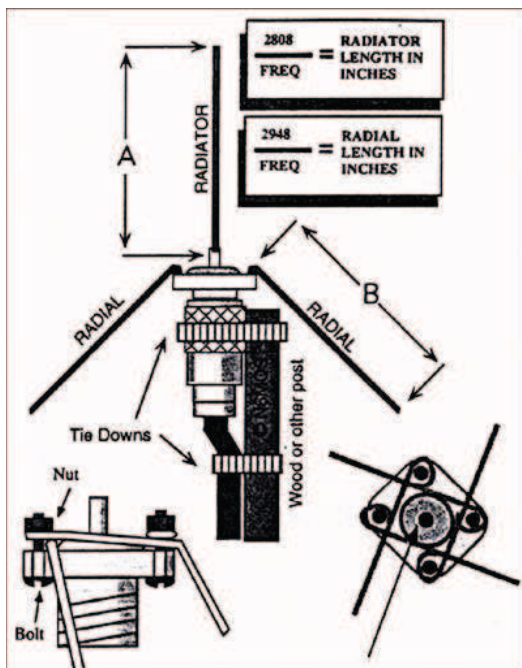
Using $2808/f$ for the Radiating Element

Using $2948/f$ for the ground radial element

Results are in Inches

1.25 Metres			900 MHz.			1240 MHz.		
f (MHz.)	Radiator	Radial	f (MHz.)	Radiator	Radial	f (MHz.)	Radiator	Radial
222.000	12 10/16	13 4/16	902.000	3 2/16	3 4/16	1240.000	2 4/16	2 6/16
222.125	12 10/16	13 4/16	903.000	3 2/16	3 4/16	1242.000	2 4/16	2 6/16
222.250	12 10/16	13 4/16	904.000	3 2/16	3 4/16	1244.000	2 4/16	2 6/16
222.375	12 10/16	13 4/16	905.000	3 2/16	3 4/16	1246.000	2 4/16	2 6/16
222.500	12 10/16	13 4/16	906.000	3 2/16	3 4/16	1248.000	2 4/16	2 6/16
222.625	12 10/16	13 4/16	907.000	3 2/16	3 4/16	1250.000	2 4/16	2 6/16
222.750	12 10/16	13 4/16	908.000	3 1/16	3 4/16	1252.000	2 4/16	2 6/16
222.875	12 10/16	13 4/16	909.000	3 1/16	3 4/16	1254.000	2 4/16	2 6/16
223.000	12 9/16	13 4/16	910.000	3 1/16	3 4/16	1256.000	2 4/16	2 6/16
223.125	12 9/16	13 3/16	911.000	3 1/16	3 4/16	1258.000	2 4/16	2 5/16

223.250	12 9/16	13 3/16	912.000	3 1/16	3 4/16	1260.000	2 4/16	2 5/16
223.375	12 9/16	13 3/16	913.000	3 1/16	3 4/16	1262.000	2 4/16	2 5/16
223.500	12 9/16	13 3/16	914.000	3 1/16	3 4/16	1264.000	2 4/16	2 5/16
223.625	12 9/16	13 3/16	915.000	3 1/16	3 4/16	1266.000	2 3/16	2 5/16
223.750	12 9/16	13 3/16	916.000	3 1/16	3 3/16	1268.000	2 3/16	2 5/16
223.875	12 9/16	13 3/16	917.000	3 1/16	3 3/16	1270.000	2 3/16	2 5/16
224.000	12 9/16	13 3/16	918.000	3 1/16	3 3/16	1272.000	2 3/16	2 5/16
224.125	12 8/16	13 2/16	919.000	3 1/16	3 3/16	1274.000	2 3/16	2 5/16
224.250	12 8/16	13 2/16	920.000	3 1/16	3 3/16	1276.000	2 3/16	2 5/16
224.375	12 8/16	13 2/16	921.000	3 1/16	3 3/16	1278.000	2 3/16	2 5/16
224.500	12 8/16	13 2/16	922.000	3 1/16	3 3/16	1280.000	2 3/16	2 5/16
224.625	12 8/16	13 2/16	923.000	3 1/16	3 3/16	1282.000	2 3/16	2 5/16
224.750	12 8/16	13 2/16	924.000	3 1/16	3 3/16	1284.000	2 3/16	2 5/16
224.875	12 8/16	13 2/16	925.000	3 1/16	3 3/16	1286.000	2 3/16	2 5/16
225.000	12 8/16	13 2/16	926.000	3 1/16	3 3/16	1288.000	2 3/16	2 5/16
			927.000	3	3 3/16	1290.000	2 3/16	2 5/16
			928.000	3	3 3/16	1292.000	2 3/16	2 5/16
						1294.000	2 3/16	2 4/16
						1296.000	2 3/16	2 4/16
						1298.000	2 3/16	2 4/16
						1300.000	2 3/16	2 4/16



That was easy!

Next is to feed these antennas with a good coax... My favourite cable this year is FFL240 for my HF antennas and FLL400 for 50 Mhz. and up. Although there are a couple places in town to buy it....in 1000 foot rolls, you can get it from www.radiotronics.ca for under \$1 a foot for the semi rigid cable and \$1.30 a foot for 240 Ultra-Flex for your mobile installations. They'll even put the PL259 or N connectors on for you!

Field Day is coming up soon, so make your antennas and head out to your favourite FD site for a weekend of radio fun! Surrey & Langley will be at the



south end of Campbell Valley, Delta just north of the Boundary Bay Airport. Or if you can't get out, put up your dipole and participate from home or at least listen to the activity that weekend. Oh, and stay away from Hydro Poles and lines...touching a live wire while trying to install your new antennas would just simply ruin your day....